

Yl Natl. Park
(Monthly Reports)
March, 1922

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March

April 8, 1922

Dear Sir:

The following is my report on Yellowstone National Park, and the operation of the park, for March, 1922:

I. GENERAL CONDITIONS:

With temperature about normal, and less than the usual number of stormy days in March, the milder weather conditions were much in contrast with the very severe conditions of January and February, affording great relief to all including the wild animals.

The traffic conditions were still difficult throughout the month. No kind of vehicles can travel the Cooke City road up to this date, and it is only with saddle horses or on foot or snowshoes that this road can be used. The lower end of the road between Mammoth and Gardiner was good throughout the month, but the deep snow banks hindered the use of motor cars on the first mile out of Mammoth until nearly the end of March, although the Yellowstone Park Transportation Company was able to use its powerful White trucks over the entire route for hauling in the year's coal supply, but often had trouble and had to shovel. It was not until nearly the end of March that the road was finally opened so all kinds of motor vehicles could get over it without difficulty. Thawing weather followed by cold nights, crusts the snow, made the traveling on skis throughout the park much better, and the patrols were maintained with less difficulty.

Train service was maintained regularly every day to Gardiner, Montana, during the month. At the western entrance there was no train service, but the Oregon Short Line Railway sent a snow plow up from Ashton, Idaho, to the West Yellowstone entrance to open the road, arriving there on March 9th and returning the same day.

Weather

The Monthly Meteorological Summary, which is enclosed, is supplemented by the following notes on the weather, which were also furnished by the local observer of the U. S. Weather Bureau stationed at Mammoth Hot Springs, the data being made up from observations taken at that point.

Temperature: Monthly mean, 26.5°, is just normal. The unusually cold weather that was in progress at the close of February terminated the first day of March with a minimum temperature of 19° below zero. The remainder of the month was generally mild.

Precipitation: Total, 0.66 inch, is 1.52 inches below normal. Light snow or rain occurred on 17 days.

Snowfall: Total 4.6 inches; normal 17.5 inches. With the exception of 1889, March 1922 has the lightest snowfall of record. Under the influence of mild temperatures there was a steady reduction of the snow cover from 29.0 inches at the beginning of the month to 9.5 inches at the close. A decrease of nearly 20 inches in snow depth during March has not previously occurred except in 1906 and in 1910.

Wind: No high winds occurred but the average hourly velocity of 10.1 miles is somewhat above normal.

Sunshine: Percentage of possible 60; normal 57.

The following tables giving depth of snow in inches at various points in the park on different dates, will prove of interest and will serve to some extent to estimate the probable difficulty of opening the roads before the beginning of the tourist season:

	Feb. 28			Mar. 31		
<u>Station</u>	<u>1920</u>	<u>1921</u>	<u>1922</u>	<u>1920</u>	<u>1921</u>	<u>1922</u>
Mammoth	15.6	5.4	29	19	0	9.5
Horris	-	12	-	54	12	36
Riverside	35	24	45	50	24	40
Gallatin	36.1	18	27	48	26	23
Upper Basin	-	74	50	70	-	46
Bechler Station	-	70	68	-	72	76
Snake River	48	58	65	73	53	64
Thumb	-	50	-	-	46	-
Lake Station	-	30	45	64	36	49
Upper Yellowstone (Therofare)	-	30	50	-	36	-
East Entrance	-	26	50	67	24	40 *x
Canyon	-	30	56	70	24	56
Tower Falls	-	14	38	29	8	24
Buffalo Ranch	-	10	41	36	Trace	25
Soda Butte	29	-	45	52	"	27
Crevice	-	-	45	-	-	48
Hellroaring Obbin	-	-	-	-	-	-

* No data available.

Travel

Our records indicate that 168 people visited the park during the month as compared with practically none for March, 1921. These all came in via the northern entrance, and the occasion in most cases was to see the wild animals.

*** Snow in Sylvan Pass
estimated 25-30 ft deep with
several large slides breaking
telephone line in 3 or 4 places*

The fact that we fed hay to the elk and antelope for a few days drew them down near Gardiner in considerable numbers, and on Sunday, March 12, and again on the following Sunday, March 19, the Northern Pacific Railroad Company advertised local excursions to Gardiner to see the game, and held the train which usually departs at 11:30, until 1:30 P.M., thus giving the excursionists plenty of time to come in to the edge of the park and see the wild animals.

Labor and Supply Market

Preparatory to beginning a few of the usual field activities in April, during March a new wage schedule was established which was carefully figured out after taking into consideration the prevailing conditions as compared with conditions last year. The new rates, with last year's for comparison, are as follows:

		<u>1922</u>	<u>1921</u>
Two-horse teamster	Per Day	3.60	3.75
Four-horse teamster		3.84	4.00
Six-horse teamster		4.32	4.48
Grader men			4.24
" "		4.24	4.48
" " Power		4.88	5.04
Powderman		4.32	4.48
Painters		4.88	5.04
Carpenter		4.88	5.04
"	Per Mo.	110.00	110.00
" rough	" Day	4.00	4.48
Bridgeman		4.00	4.48
Axeman		4.00	
Waiters		3.00	3.52
Laborers		3.56	3.52
" Skilled		3.60	3.76
" Special		3.76	4.00
Caterpillar Tractor, operator	Mo.	130.00	130.00
Drillman (Air)	Per Day	4.88	5.04
Rollerman		4.88	
Compressor operator		4.88	
Hammerman		3.56	3.52
"		3.76	4.00
Cooks (for crews of 10 men or less)	Per Mo.	100.00	100.00
" (for crews of 11-15 men or less)			120.00

		<u>1922</u>	<u>1921</u>
Truck Drivers	Per Mo.	130.00	130.00
Steam Shovel Operator		200.00	200.00
Blacksmiths and horseshoers		4.48	5.04

The question of purchasing supplies for the season's work has not been taken up to an extent that would establish any rates in comparison with those of last summer. It is evident, however, that they will be substantially less, possibly with a few exceptions.

II. PERSONNEL:

Superintendent Albright visited the park March 15 to 19, while enroute from California to Washington, going over general plans for next season's work while he was here.

Employees

On March 1 there were 69 employees on the park payrolls, which had been increased to 79 on March 31.

The following list shows the number of employees of various classes serving during the month, with a general statement of the kind of work in which they were engaged:

<u>No.</u>	<u>Class</u>	<u>Kind of work performed</u>
1	Asst. Engineer	In charge of engineering work in the park.
7	Clerks	1 Disbursing Agent and Purchasing Clerk; 1 on time keeping, orders, proposals and vouchers, 1 appointed effective Mar. 1, on duty in Washington office, (1 resigned effective Mar. 15); 3 stenographer-typists on stenographic work, files, etc. (1 in San Francisco office, furloughed close Mar. 31; 1 taken up from furlough effective Mar. 16)

<u>No.</u>	<u>Class</u>	<u>Kind of work performed</u>
2	Electricians	Read meters, did necessary line work, and operated power plant regular shifts, including Sundays.
3	Foreman	1 in charge of Headquarters Corral; 1 repairing sprinkler wagons; 1 on construction.
1	Telegraph Operator	Sent and received all Government Western Union messages; operated one shift on telephone switchboard.
1	Telephone Switchboard Operator	Operated telephone switchboard, daily shifts, including Sunday.
1	Master Mechanic	In charge of shops, and of repairs to heavy road machinery.
1	Blacksmith	General blacksmith work, including shoeing horses in shop, overhauling and repairing tools and equipment.
1	Master Painter	General shop work, including painting equipment and buildings.
1	Chief Lineman	In charge of power plant, telephone lines, and of maintenance crews on telephone lines.
7	Laborers	Teaming, freighting, assisting mechanics and miscellaneous work at headquarters 1 on lv. W.O.P. Apr. 1.
1	Handyman	Acting Steward and Master of Transportation.
1	Chief Buffalo Keeper	In charge of tame buffalo herd.
2	Asst. Buffalo Keepers	1 assisting Buffalo Keeper (Resigned effective close Mar. 14); 1 in charge of hay ranch operations at Slough Creek.

<u>No.</u>	<u>Class</u>	<u>Kind of work performed</u>
1	Master Plumber	In charge of general plumbing and water and sewer system.
3	Automobile Mechanics	2 repairing motor trucks and touring cars. 1 on duty at power plant.
1	Carpenter	Repairing buildings at headquarters.
1	Chief Park Ranger	In charge of ranger force.
1	Fish and Game Warden	Special observation and reports on wild animals.
1	1st Asst. Chief Park Ranger	In charge of northern district.
2	Asst. Chief Park Rangers	1 on duty at Headquarters. 1 on duty in Chief Ranger's Office.
20	Park Rangers	Patrolling park borders, protecting and feeding game.
3	Temporary Park Rangers	Making patrols.

In addition to the regular employees listed above under appointment, the following were employed temporarily by the day:

	<u>On March 1st</u>	<u>On March 31st</u>
Painter	0	1
Laborers	3	6
Skilled Laborers	2	8
2-horse teamsters	0	1
4-horse teamsters	<u>1</u>	<u>1</u>
	6	17
Appointees	<u>63</u>	<u>62</u>
	69	79

Dustman L. no pay 10-15 = 6 da
~~Shawell B. Asst. Chief~~ ~~4~~

Leaves of Absence

During March, annual leaves of absence were granted as follows:

Geo. T. Dustman	<i>Proll</i> Clerk	Mar. 10-15, 6 da, L.W.O.P.
✓ Earl E. Bowman	✓ Park Ranger	Mar. 1-7, 6 da.
Charles A. Brant -	✓ Handyman	March 1-4, 4 da.
Charles A. Brant -	✓ Handyman	March 6-11, 6 da.
✓ Luther Custer	✓ Park Ranger	Mar. 6(noon)-20(noon), 12 da.
→ Roy X. Gray	✓ Laborer	Mar. 1-4, 4 da.
Roy X. Gray -	✓ Laborer	Mar. 7-11, 5 da.
Nathan E. Scudel -	✓ Tele Operator	Mar. 2-3, 2 da.
A.C.D. Hennan <i>Mich 1</i>	✓ Laborer	Mar. 4, 1 da.
✓ A.C.D. Hennan	✓ "	Mar. 9(noon)-16, 9½ da. S.L.*
A.C.D. Hennan -	✓ "	Mar. 19-25, 6 da.
William Wiggins -	✓ Master Plumber	Mar. 3-8, 5 da.
John D. Fraser -	✓ Auto. Mech.	Mar. 8(noon)-9, 1½ da.
✓ Sam Cleveland -	✓ Laborer	Mar. 13-26, 12 da.
Forest L. Carter -	✓ Park Ranger	Mar. 12-26, 12 da.
Dante T. White -	✓ Foreman	Mar. 20-25, 6 da.
✓ Harry Trischman -	✓ 1st Asst. Ch. Park Ranger	Mar. 6-12, 6 da. S.L.
✓ August O. Neumann -	✓ Master Painter	Mar. 10-14, 5 da. S.L.
✓ Joseph Douglas -	✓ Asst. Chief Park Ranger	Mar. 3-14, 12 da. S.L.
✓ Arthur W. Burney -	✓ Asst. Engineer	Mar. 6-7, 2 da.
Wm. J. O'Laughlin -	✓ Laborer	Mar. 6-10, 5 da.
✓ Carrie O. Hanneser -	✓ Stenog-Typist	Mar. 21(noon)-31, 9½ da.
John E. McDonald -	✓ Asst. Buffalo Keeper	Mar. 13-14, 2 da.
✓ Daniel W. Tripp <i>6-14 = 9</i>	✓ Laborer	Mar. 6-13, 9 da. S.L.
Daniel W. Tripp -	✓ Laborer	Mar. 1-5, 4 da.
Albert T. McLaughlin -	✓ Park Ranger	Mar. 6-6, 1 da.
✓ William Wiggins -	✓ Master plumber	Mar. 25-27, 2 da.
✓ Harry McFarland -	✓ Foreman	Mar. 27-29, 6 da.
Bellie Roach -	✓ Tele Operator	Mar. 25-28, 4 da. S.L.
✓ Clarence Scoyen <i>none</i>	✓ Laborer	Mar. 30(noon)-31, 1½ da.
Joseph Douglas -	✓ Asst. Chief Park Ranger	Mar. 18-23, 6 da. S.L.
Leroy Hill -	✓ Pur. Clerk & S.D.A.	Mar. 1-4, 4 da.
✓ Wm. J. Purdue	✓ Park Ranger	Mar. 7-12; 19-31, 16 da.

* S.L. denotes Sick Leave.

Appointments

Miss Beronice J. Pinney, clerk, \$1400 p.a., effective March 1, 1922, on duty in Washington office.

Miss Helen E. McNutt, stenographer-typist, \$1200 p.a., re-

called from furlough, beginning Nov. 1, 1921, and reported for duty Mar. 16, 1922.

Separations

Mr. George T. Dustman, clerk, \$1440 p.a., resigned effective close of March 15, 1922.

Mr. John W. McDonald, Assistant Buffalo Keeper, \$1200 p.a., resigned effective close of March 14, 1922.

Miss Carrie O. Haumesser, stenographer-typist, \$1320 p.a.

furlough effective April 1, 1922, applied for.
Mr. Sam Cleveland, Laborer, \$1200 p.a., leave without pay off. Apr. 1.

III. WORK COMPLETED

Nothing to report.

IX. WORK IN PROGRESS

(a) Construction of Physical Improvements

Nothing to report.

(b) Maintenance and Repair of Physical Improvements

Included under another heading.

(c) Miscellaneous Improvement Work.

Reasonable progress was made on the several important jobs of work at Headquarters which were planned for the winter, although there was again more or less interruption on account of the taking of annual leave by employees, and more especially of sick leave occasioned by prevalence of the flu epidemic.

North Entrance Road

On March 22nd one man was placed on the road below Mammoth to patrol that section and keep water from the melting snow turned into the ditches.

A six-horse grader outfit was also started to work on this section. Ditches were cleaned of debris and the roadbed graded and shaped up where it was sufficiently dry to permit working.

Bridge Repairs

After the high water last spring it was noticed that the south abutment of the first steel bridge below Mammoth

over the Gardiner River was badly undermined. As it is unlikely the structure could resist another high water in its weakened condition, a small crew under Foreman White was organized and began making repairs on March 28th. A cofferdam was constructed of sand bags around the abutment. After the water has been pumped out, a trench will be excavated along the face of the abutment about 2 feet below the riverbed. A concrete wall will then be built along the face of the wing-walls and abutment and the cavity underneath filled with concrete.

The shop force, in addition to their usual work outlined in a future paragraph, devoted as much time as they could to going ahead with the work on the heating plant for the shops, and considerable progress was made on this work.

Painting Department: The Master Painter put in most of the month on the work of renovating quarters of employees, and painting one truck. He had assistance for a few days during the latter part of the month only.

Foreman Ferrell continued his work of overhauling sprinkler wagons, and with an assistant part of the time, he made good progress.

The Master Plumber was busy making necessary repairs to fixtures and plumbing in buildings at Headquarters, and in general oversight of the water and sewer systems.

Headquarters Corral: The Foreman was on leave part of the month, was in charge of the corral while here, and devoted his spare time to mending tents, repairing a total of 60 during the month. One teamster was on duty in connection with this corral, and devoted his time to general police work, hauling freight from Gardiner, and a little work repairing the road to Gardiner. One laborer hauled fuel and garbage and handled the general work at Headquarters, incident to maintenance of the buildings and plant.

Transportation and Storehouse Force: Due to the bad condition of the Gardiner road for hauling, we only did such freighting as was absolutely necessary, using such teams as were available for work about headquarters and repairing the road. The storehouse force devoted their

time to sorting and inventorying property, and posting up the return and memorandum receipts and bin cards.

The Carpenter completed the laying of the new floor in the Superintendent's quarters, assisted on the making of forms for running concrete for the heating plant, and did minor repairs to buildings and equipment at headquarters.

The Blacksmith and his assistant worked much of the time on the heating plant, and did necessary horseshoeing and some work on equipment. They also made a supply of drift bolts for later use in connection with construction of cribs for holding back high water, which are to be built on the East road a little later on.

The two Mechanics on duty at the garage and automobile repair shop completed the repairs to the 2-ton Signal Truck which was begun in February, completed the repairs to the two 5½-ton Mack Trucks which were also begun in February, and did some minor repair work on the Studebaker 1-ton truck rendering it serviceable for light work.

The Telephone System and Power Plant were maintained and operated by the regular force during the month. The power plant was run constantly and the results as compared with results in March, 1921, are shown by the following table:

	<u>1921</u>	<u>1922</u>
Total current generated, in KW hours	11580	16500
Of this, sold to public utilities		
@ 5¢ per KW hour	860	1295
Consumed for street lighting	1009	2063
Balance, consumed in Government buildings, for power and lighting, lost on lines in transit	9711	15142
Peak load during month in Kilowatts	46	42

Daily reports of operations were submitted.

The Telegraph and Switchboard Office was run daily from 7:30 A.M. to 8:45 P.M., the total business handled being as follows:

Switchboard Calls

On Government local lines	3327
On Hotel Company lines	209
On Long Distance Connections	<u>72</u>
	3608

Telegrams Handled

Government sent	74		
Government received	39	113	
Commercial sent	21		
Commercial received	27	48	<u>161</u>
Total messages handled during March			<u><u>3769</u></u>

Error here

Telegrams were handled over the wires of the Western Union Telegraph Company through its office at Helena, Montana. Long distance telephone calls were handled through the Livingston, Montana, office of the Mountain States Telephone and Telegraph Company.

Office Force: Usual routine work kept the office force occupied. This included the placing of orders, payment of vouchers, preparation of accounts and reports, general correspondence and personnel. A total of 936 pieces of official mail were received and 780 sent out during the month. In conjunction with the Chief Ranger Office, selections were made for appointment of temporary rangers for next season, and letters requesting their appointment written for Superintendent Albright to take with him to Washington. Much work was also done in the Chief Ranger's Office in the preparation of material for the new Ranger Manual, and later this was copied in the office and forwarded to Superintendent Albright in Washington for use in the manual.

The Assistant Engineer, who has been away on annual leave, returned to duty March 13th. The office files of

maps and other data was placed in order, correspondence answered and a 6x8 concrete culvert designed for Moss Creek in the East Forest Reserve. Some attention was given to the road and bridge repair work started

Protective Force

The necessity for continuing the intensive work along the north line in connection with protecting and feeding the wild animals continued until well towards the last of the month of March. Feeding from the supply at Gardiner continued until March 15th, at Slough Creek until March 22nd, and is still being carried on at the Buffalo Ranch. The general duties carried on by the ranger force is indicated by the following notes taken from the Chief Ranger's report for March:

Patrol Work

Patrols were made by Chief Ranger Woodring to Gardiner and up the Yellowstone River to Cottonwood. He also helped feed elk the first 15 days of the month. Fixed saddles and riding equipment for the temporary force. Patrol to the lower Yellowstone Valley in company with Forest Service Officials. Helped drive elk from farmers haystacks north of park line.

Game and Fish Warden McBride: Patrols in vicinity of Gardiner, Jardine and Lower Yellowstone Valley. Helped drive elk. Made observations of game in vicinity of Gardiner.

Assistant Chief Ranger Scoven: On duty in the Chief Ranger's Office. Helped take truck to Gardiner and fed one day.

Northern Supervisory Territory

First Assistant Chief Ranger Trischman: Patrols over country around Gardiner, Jardine and helped drive elk. Made two trips to Buffalo Ranch. On sick leave six days.

Tower Falls

Dupuis feeding horses. Made patrols to Mammoth and Slough Creek. Assisted at Buffalo Ranch for several days.

Soda Butte

Regular patrols. Winn made two trips for purpose of observing the condition of the wild buffalo. Carter on leave 12 days. Assisting at Buffalo Ranch.

Riverside

Patrols over entire district. Made trips to Gallatin and Upper Basin. Assisted Bristol's publicity party at West Yellowstone.

Gallatin

Regular Patrols. Special trips for observing and counting game in Gallatin Valley.

Gardiner

Regular Patrols. Made special counts of the antelope, and helped drive elk.

Southern Supervisory Territory

Assistant Chief Ranger Douglas: At Headquarters the entire month. On sick leave and light duty.

Lake

Regular Patrols. Special Patrol to Thumb^b to fix telephone line.

Snake River

Regular Patrols. Patrol to Thumb to fix telephone.

Bechler River

Regular Patrols.

Sylvan Pass

Regular Patrols. Special patrols through Sylvan Pass to fix telephone line.

Upper Yellowstone

No men on station until 28th. Bowman on leave 1st to 7th. Assisted feeding elk at Gardiner until 20th. Butler at Lake with Wolls while Custer was on leave.

Ranger Burkett was stationed in Stander Basin, about 11 miles east of Carbella, Montana, in the heart of the Absaroka Mountains, March 3 to 31, assisting the State Officers and Forest Rangers to protect the elk in that country.

The Buffalo Keeper and his assistant were busy caring for the tame herd of buffalo at the Lamar River Ranch, and beginning March 18th, when the herd was attacked for the third time in its history with hemorrhagic septicemia, they have had to have considerable assistance from the ranger force.

Two men were stationed on Slough Creek where they fed hay to the elk and did some protection work.

Travel conditions for skis and snowshoes were much improved over February, enabling the rangers in the upper park to make their patrols with greater ease.

Improvements by Park Utilities

There is nothing of any consequence to report in this line. The Transportation Company had a few men painting cars at Mammoth, and one or two men repairing car bodies and tops part of the month. Young Nam, the Chinaman employed every summer by the Hotel Company in charge of the garden 2 miles north of Mammoth, arrived on March

VI. PLANS OR PROPOSED WORK:

Our plans for April contemplate the continuance of the work of maintenance of plant and buildings at park headquarters, including the shop work of overhauling motor vehicles, heavy equipment and tools, and continue work to some extent on the heating plant for the shops. Painting of equipment, renovating quarters, and repair of tents. The ranger force plans, in addition to regular patrols, special patrols to protect beaver which are most in danger during the spring months, further investigation of the location and condition of the wild buffalo herd; and plans are being made to build a trail to Tower Falls and also over Mt. Everts during April if the snow conditions will permit. The efforts to exterminate coyotes and wolves will be continued, especially by trying to locate and destroy dens with young which are born in April.

Due to the great amount of snow still covering roads in the park, the repairs to physical improvements in April will be confined to Mammoth, the North Entrance Road, and East Forest Road.

The hole in the road in front of the Mammoth Hotel will be covered with a concrete slab and filled.

There are three places in the North Entrance road where the Gardiner River has been encroaching into the roadway. These places will be reproped with large rocks to protect the embankment at the time of high water.

About April 15th Foreman White with a crew will be transferred to the East Forest Road, where he will construct three log diversion cribs along the Shoshone River, build a 6x8 foot concrete culvert at Moss Creek and a 12 foot concrete bridge over Pagoda Creek.

VII. POLICIES:

No changes to note for March.

VIII. COST OF OPERATION:

The total expenditures during the month as shown by the monthly report amounted to \$8083.20.

The monthly report of Cost of Work showing costs in detail will be transmitted a little later when completed.

IX. OTHER MATTERS OF INTEREST:

Wild Animals

General Conditions: Game conditions improved greatly during the past month. The month was mild and there was very little snowfall. Heavy thaws took place in the lower altitudes and snow in the vicinity of Gardiner had disappeared at the end of the month. There were a number of deaths among antelope and elk during the first part of the month, but all game was in generally good condition on the 31st.

Considerable drifting was noticeable during the latter part of the month. The elk had left the flats about Gardiner, and several large bands were noticed traveling to the interior regions of the park. The number of deer in the lower altitudes had also disappeared and the mountain sheep have left the Gardiner Canyon for higher benches and ridges.

Elk: At the opening of March it was realized that unless the weather moderated soon there would be a very heavy loss among the elk. The first part of March was not particularly mild and it was necessary to feed the Gardiner elk until the 15th. There were 78 elk hauled away and buried at Gardiner during the month. Compared to March 1920 this number is very small as the total for that month was well over 500. Moderation of the weather during the latter half of the month caused conditions to improve, and there were few elk that died after the 15th. The elk were drifting back to the park from the outside very rapidly on the last of March. McBride reports that the number of elk on Hellroaring increased from 400 to 1700 in two days. The elk in the Northern herd are still scattered and it is not possible to get an accurate count of them.

Rangers at Gallatin Station made a count of the number of elk in the Gallatin Valley below the park during the latter part of March. They saw a total of 1354 elk along the Gallatin River and tributaries within 9 miles of the park line. Not a single winter kill was found in this area, and the grazing conditions were excellent. These elk have apparently better winter range than any of the park herds, and will no doubt increase steadily, now that the hunting season has been shortened. A conservative estimate of the number of elk in the Northwestern portion of the park would be 2000. There has been two cases of elk being killed by poachers in the Gallatin Game Preserve, but no responsibility has been fixed.

Shipment of Elk: A yearling bull elk was shipped to Platt National Park, Oklahoma, by express, charges collect, on March 4, in compliance with your authority dated January 25, 1922; 2 female elk, 1 and 2 years of age, were shipped to the City of Jackson, Miss. on March 6, under authority dated Nov. 25, 1921.

Antelope: The past winter, which has caused only slightly above the normal winter loss of other animals has been disastrous for the antelope. The rangers estimate that about 50% of the park antelope were lost during the past winter. Last fall there were 404 antelope near Gardiner, and this spring there has been 188

accounted for. It is easily possible that there are 200 antelope left at present.

These animals are not fitted by nature to combat the severe cold and deep snow of a park winter, and in severe winters like the one just past, they are practically helpless. It becomes more and more evident each year that something will have to be done for their special care and protection, if they are not to become exterminated. The deep snow, severe cold and constant harassing by predatory animals is a combination that the antelope are not capable of withstanding. During the past winter about 100 coyotes were killed on the antelope ranges near Gardiner. Every effort was made to give them feed, but in most cases they were driven away by the elk.

Buffalo, tame herd: The tame herd of buffalo was kept at the Lamar River ranch and fed hay throughout the month. A total of about 525 tons of hay have been fed there during the winter, to include March 31. For the third time in the history of the tame herd of park buffalo there has been a serious loss of life among the young animals from an epidemic of hemorrhagic septicemia. On March 18, upon receipt of word from the Chief Buffalo Keeper that several buffalo were dead and that they had symptoms of hemorrhagic septicemia, we wired to Doctor Rudolph Snyder, Inspector in charge of the local office of the U. S. Bureau of Animal Industry at Helena, Montana, who immediately sent Doctor Neil Plank, of his office, who arrived on March 19th, reaching the buffalo ranch on the following day. Doctor Plank was suspicious at once that this was a recurrence of the old trouble, and his suspicions have been definitely confirmed by the examination of specimens which he sent in to Helena, which were taken from some of the dead animals.

The herd was separated, and all carcasses of dead animals were burned as soon as possible. Bacterins were ordered by wire from Washington and came by express on March 29th. All of the young animals that had not died, 52 in number, were vaccinated on March 30, including 3 that were sick. These three have died since. The balance were vaccinated the second time on April 6. The total losses at this writing, over the period March 18th

to April 6, have been 51, of which 34 were last year's calves which were vaccinated last fall, 7 were 2-year olds, 7 were 3-year olds, 1 was 4 years old, 1 was five and 1 was ten years old. Percentage of loss in the herd of 506, about 18%.

At this writing there are no suspects, and it looks as if the epidemic were over for the present. Doctor Floyd E. Clark, also of the U.S. Bureau of Animal Industry, stationed at Boxema under the Helena Office, was also sent here, arriving at Mammoth March 28th, to Tower Falls 29th, and arrived at the ranch the 30th. He left on April 3rd. Doctor Plank is still on the job at the ranch. He will make report later, with suggestions for future precautions.

Other cases of Hemorrhagic Septicemia in the Park:
In February, 1909, several deer died near the quarters at Fort Yellowstone with convulsions, frothing at the mouth, etc. Major Benson wrote the Chief of the Biological Survey regarding it, describing the symptoms, and was informed that the symptoms described were typical of hemorrhagic septicemia.

A letter dated April 26, 1917, from B. H. Ransom, Chief, Zoological Division, U. S. Bureau of Animal Industry, Washington, D. C., to Dr. R. H. Treacy, Bismarck, North Dakota, states that the ticks sent in by Dr. Cohenour belong to the species known as the winter tick (*Dermacentor albipictus*). That the mites from the elk and mountain sheep were psoroptic mites. Also that half of a shipment of 40 elk from Gardiner to a dealer in wild animals near Kansas City, Missouri, died from disease, and that from the tissue of some of the elk forwarded to the Pathological Division of his Bureau an organism was recovered corresponding in its characteristics to the bacterium of Hemorrhagic Septicemia.

During the early part of the summer of 1917, Dr. W. E. Cohenour, a veterinarian of the Department of Agriculture, Bureau of Animal Industry, from the Bismarck, North Dakota office, spent several days in the park making experiments relating to diseases of wild animals, especially of the mountain sheep in Gardiner River Valley. In conducting his experiments, several wild sheep were captured and confined in a building at Fort Yellowstone. One that died during confinement was posted by Dr. Cohenour and specimens sent to the Pathological Division with his opinion that he suspected hemorrhagic septicemia, and

laboratory tests in Washington confirmed his suspicion.

The first outbreak of Hemorrhagic Septicemia occurred in December, 1911, when 22 (14 males and 8 females) or 15% of the herd, died. This outbreak occurred just after the herd had been taken up from the range and turned on to timothy stubble. The Bureau of Animal Industry, Department of Agriculture, sent Dr. E. J. Cary, Veterinarian, here from Great Falls, Montana, who investigated. At first it was thought to be black leg, and the herd was vaccinated for this disease. Specimens were sent in, and it was determined that the disease was hemorrhagic septicemia and a serum was prepared from the specimens, and in June, 1912, was used as a vaccine, by Dr. R. H. Treacy, of B. of A.I., from Bismarck, North Dakota.

The second outbreak of Hemorrhagic Septicemia occurred in the latter part of January, 1919. When this outbreak occurred, the buffalo were still on their winter range and distributed for several miles in the vicinity of the Lamar River Ranch, as the winter had been open and it had not become necessary up to that time to feed hay. The Bureau of Animal Industry sent Veterinarian I. Wallman from its newly established office in Helena, Montana, to investigate and report. On his advice, the herd was taken up and put on hay during the balance of the winter. All carcasses were destroyed, and every possible precaution taken to prevent the spread of the disease.

During this epidemic, 36 animals died and 17 were missing. Those effected were mostly young animals, at least three of them having been vaccinated during the preceding fall. Loss about 13%.

Doctor Wallman made a careful study of the situation, and sent parts of the afflicted animals to the Pathological Division in Washington, and from these his fears that the trouble was a recurrence of the same disease were confirmed. New serum was made up and in October, 1919, 355 of the younger animals of the herd, including 90 calves, were vaccinated. 3 calves and 1 cow were killed in the process of vaccination.

This dreaded disease which is very severe and hard to handle has been suspected and identified among the wild animals in the park in several other cases, namely among the deer at Mammoth in February, 1909, when Major H. C.

Benson, Acting Superintendent, wrote the Chief of the Biological Survey describing their symptoms and was informed that the symptoms were typical of it; to a slight degree among the elk in 1917, from specimens sent by Doctor W. E. Cohenour through Doctor R. H. Treacy, of Bismarck, North Dakota, to the Bureau of Animal Industry in Washington, and the same Bureau found the same disease in specimens of a mountain sheep sent in by Doctor Cohenour from the park the same year,

in detail heretofore

as described

Buffalo, wild herd: Park Ranger Winn made some extensive observations of the wild herd in the Lamar Valley during the past month. He found a total of 55 on Willow Creek. He also found 2 dead. 7 of the total number found are in poor condition, but the rest are in splendid shape. It is intended to make further patrols into the country these animals are known to stay during the winter in order to get further counts of them.

Deer: Deer wintered well in most cases and there was but a small loss due to predatory animals. The deer are well capable of wintering in the park during severe weather and show but few marks of the winter just past.

Moose: Reports indicate that the moose are wintering in good shape.

Mountain Sheep: No special reports, but the few observations made indicate that they are in good condition.

Predatory Animals: About 25 coyotes were accounted for in the park during the past month. It is impossible to get an accurate estimate of the number of these animals killed, as poison was used extensively and there have been many killed that have never been found. E. Anderson, the trapper at Gardiner, was sick during a large part of the month, and was unable to hunt out these dead animals.

In addition to those mentioned in last month's report it has been reported that rangers at Snake River have accounted for 10 coyotes.

Figuring those that were reported as being killed last month, and a few that have not been reported to this office, the total number of predatory animals killed in

the park is about 175 coyotes and 1 wolf.

Ranger H. Anderson has been ordered to look for wolf dens in the Blacktail and Hellroaring country and is now on this work. Since April 1st he has succeeded in locating a den of wolves, killed the mother and captured 10 puppies alive.

Game Conditions outside of the Park

The park animals including several hundred elk that wintered just outside of the park in the Absaroka and Gallatin National Forests appeared to get all the forage they wanted, and were not molested except in a few remote cases. Towards the end of March, with warm weather, they began to drift rapidly back towards the park line.

The number and condition of the Gallatin herd of elk has been noted in a preceding paragraph.

In connection with the protection of these northern herds which are joint park and state property, depending upon which side of the park line they chance to be, we are still maintaining the best possible cooperation with the State's game wardens and the Forest Rangers who are especially charged with this work in the vicinity of the park in winter.

In this connection, during Superintendent Albright's recent visit to the park, the Montana State Game Warden, Mr. C. A. Jakways, accompanied by the State Fire Marshal, Mr. R. B. Montrum, both of Helena, Montana, met him in Livingston and accompanied him to Park Headquarters on March 15th, remaining over night and conferring relative to the future care and protection of the elk herds. On the afternoon of March 15th, Mr. F. E. Morrell, the District Forester from Headquarters of District No. 3 at Missoula, Montana, accompanied by Forest Supervisor Ernest Shaw of the Absaroka National Forest, called at our office and conferred with Mr. Albright in regard to the same subject. Mr. Jakways has in mind a definite plan for providing winter feed for the northern elk herd when needed, which contemplates buying up some of the ranches in the Yellowstone Valley just north of the park, dependent upon the cooperation of the Elks Lodge for assisting in the matter of funds. The danger is past for this season, and the losses have not been excessive even

F. E.

though December, January and February were very severe months from the standpoint of winter weather.

The Southern Elk Herd: The first very definite news of this herd which we have had this winter is embodied in a report made through the press and published in the Sheridan (Wyo.) Post of March 17, 1922, copy enclosed herewith. This is a quotation from report of Mr. Howard Eaton, of Wolf, Wyoming, who was a member of a commission appointed by Governor Carey of Wyoming to investigate the condition of the Jackson Hole elk, the other members of the commission being Major E. A. Goldman, of the Biological Survey, and State Game Warden Bruce Nowlin. The report is encouraging.

Domestic Animals

The surplus horses belonging to the National Park Service were kept on hay at Yanceys during March and cared for by the ranger stationed at Tower Falls station.

Birds

Bluebirds were noted at Park Headquarters on March 28, and robins on the 29th. They were reported further down the valley about two weeks earlier.

Fish

Fishing was out of season and there was no special interest displayed.

Arrests and Violations of Law

None reported during the month.

Sickness and Medical Service

Doctor W. E. Crawbuck, our park physician, reports that he made 134 calls on employees during the month of March. The influenza epidemic continued well into March and resulted in enforced leave of absence of employees in many cases, either through their own sickness or that of members of the family. It was mild in form, however, and there were no serious results. There were also several cases of tonsillitis and one light case of pneumonia.

Births

A son was born to Miss Edith L. Gray at the home of her brother, who is employed at Park Headquarters, on March 6th. The child was illegitimate but another employee, George Webb, admitted parentage and promised to wed Miss Gray as soon as practicable.

Natural Phenomena

No changes were noted during March.

Special Visitors

Special visitors during March include Messrs. Jakways and Mentrana, Morrell and Shaw, noted under the heading Camp Conditions.

Mr. Howard H. Hays and Mr. E. C. Moorman, officials of the Yellowstone Park Camps Company, on March 27-28, on business connected with the permanent camps.

Kyre Powell, Press Representative U.P.R.R., accompanied by Mr. Fred A. Parrish, cameraman for Fox News, Mr. Jack Driscoll, and three ladies, all from Salt Lake City, Utah, came to the western entrance March 9th on the snow plow which was sent in by the O.S.L.R.R.Co. to open the road from Ashton to West Yellowstone. They had planned to make the trip to Old Faithful with a dog team, taking moving and still pictures and gathering other data for publicity and advertising, but for lack of time had to abandon this idea. They entered park, and rangers at Riverside Station who had been previously instructed, assisted them in getting such pictures as they wanted - photographs and still pictures around our checking station. They took pictures representing the first tourists entering the park in 1922.

Motion Pictures

No motion picture permits were issued during March. No motion pictures were taken in the park, except for the visit of the press representatives to the western entrance on March 9th, as noted under Special Visitors.

Miscellaneous

School: The park school was maintained daily as usual for the benefit of employees' children, under charge of Mrs. Harriott, and a copy of her monthly report of attendance is enclosed.

Entertainments: The usual picture shows for entertainment of park employees were held weekly during the month.

Religious Services: Church services were held in the Chapel by Rev. J. H. Groth, English Lutheran minister from Livingston, Montana, on the evening of March 26th. Evening services were also held in the Chapel on March 19, conducted by W. Friend Day, layman of the Episcopal Church, who has been assigned by Bishop Faber of Montana to the field represented by Livingston, Montana, the Park, and the Yellowstone Valley intervening.

Circulars Issued in March: A copy of Circular No. 1, dated March 18, referring to change in duties of Chief Ranger Woodring and Game Warden McBride; also copy of Circular No. 2, dated March 18, referring to the disposition of elk teeth; and copy of Circular No. 3, dated March 18, referring to care of roads by rangers, are enclosed.

IX. RECEIPTS AND REMITTANCES:

There is enclosed the monthly report of revenues due, collected and transmitted during March, in duplicate on the usual blank forms. The total amount enclosed as shown by the report is described as follows:

Postal Money Order No. 48843, dated March 2, 1922, drawn by the Postmaster at Yellowstone Park, Wyoming, on the Postmaster at Washington, D.C.,	
amount	\$ 1.90
Check No. 1703, dated March 3, 1922, drawn by Yellowstone Park Camps Company, Livingston, Montana, on the Northwestern National Bank, Livingston, Montana, to your order, amount	4.55

Voucher Check No. 822 (1554), dated
 March 26, 1922, drawn by the
 Yellowstone Park Transportation
 Company, Helena, Montana, on the
 National Bank of Montana, Helena,
 Montana, to your order, amount \$ 174.37

Voucher Check No. 386 (1186), dated Feb.
 7, 1922, drawn by the Yellowstone
 Park Hotel Company, Helena, Montana,
 on the National Bank of Montana,
 Helena, Montana, to your order,
 amount 3.67

Voucher Check No. 364 (1164), dated January
 20, 1922, drawn by the Yellowstone
 Park Hotel Company, Helena, Montana,
 on the National Bank of Helena,
 Helena, Montana, to your order, amount .. 3.41

Voucher Check No. 1704 (1212), dated Mar.
 26, 1922, drawn by the Yellowstone
 Park Hotel Company, Helena, Montana,
 on the National Bank of Montana, Helena,
 Montana, to your order, amount 2.59

Voucher Check No. 821 (1555), dated March
 26, 1922, drawn by the Yellowstone Park
 Transportation Company, Helena, Montana,
 on the National Bank of Helena, Helena,
 Montana, to your order, amount 40.79

Voucher Check No. 887 (1498), dated Jan. 3,
 1922, drawn by the Yellowstone Park
 Transportation Company, Helena,
 Montana, on the National Bank of Helena,
 Helena, Montana, to your order, amount .. 63.75

Voucher Check No. 840 (1523), dated Feb. 7,
 1922, drawn by the Yellowstone Park
 Transportation Company, Helena,
 Montana, on the National Bank of
 Helena, Helena, Montana, to your
 order, amount 49.75

\$344.76

Acknowledgment of the receipt of the enclosed
money is requested.

Cordially yours,

Cal

Chester A. Lindaley,
Acting Superintendent.

The Director,
National Park Service,
Department of the Interior,
Washington, D. C.

Enclosures.

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DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

Yellowstone Park, Wyoming

March 18, 1922

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CIRCULAR NO. ~~24~~

This circular becomes effective today and modifies Circular #25, issued November 1, 1921. Chief Park Ranger Sam T. Woodring will assume the charge of, and be responsible, for the protection of the North line and the game of the Northern District, as well as all other parts of the park, and the wild life therein.

He will also assume general supervision of the operations of the Slough Creek Hay Ranches.

Game and Fish Warden James McBride will continue his work of observing conditions of the wild life and will devote such time as may be available planning for the re-stocking of streams and other waters of the park during the coming summer.

HORACE M. ALBRIGHT,
Superintendent.

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

Yellowstone Park, Wyoming

March 18, 1922

CIRCULAR NO. 28

This circular becomes effective today and relates to the collection and handling of elk teeth.

Members of the Ranger Force upon finding dead elk will extract the teeth from the skulls thereof which may be marketed for Elks' Order jewelry. All teeth collected by rangers will be turned in as soon as possible to the Superintendent's office. The purpose of this order is to prevent the collection of elk teeth from dead elk in the park by parties other than rangers, who under this order will make their collections as a part of their official duties.

Rangers will be careful to turn in all teeth in their possession at the earliest possible moment. Teeth found in possession of rangers, or in their stations, which should have been turned in to the Superintendent's office, will be regarded as being held by such rangers in violation of the law and will be cause for their dismissal.

Except as this order modifies Circular #32 of the 1920 series, issued October 15, 1920, the rangers will continue to observe all of the provisions of this old order which also relates to the collection of elk teeth.

HORACE M. ALBRIGHT

Superintendent

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April 8, 1922

Dear Sir:

I transmit herewith Page 8 of the Monthly Report for March, 1922, which was omitted in mailing the report this morning.

I am also enclosing amended Page 17, which required a slight addition regarding shipment of elk. Please substitute this for the Page 17 found in the report.

Cordially yours,

Cal

Chester A. Lindsley,
Acting Superintendent.

The Director,
National Park Service,
Department of the Interior,
Washington, D. C.

CAL:JSS
Enclosures.

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